

ANIMAL & DAIRY SCIENCES



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MISSISSIPPI STATE
UNIVERSITY™



HAPPY HOLIDAYS!

From Mississippi State University
Animal and Dairy Sciences



ADS Student Awarded the First HOPE Scholarship

Mississippi State University Animal & Dairy Sciences senior Emanuel Mireles was named the first recipient of the Heart of Dixie Palomino Exhibitors Association (HOPE) Scholarship during the HOPE Annual Christmas Party last weekend in Tupelo, Mississippi.

This was the first year that the \$500 scholarship was awarded to a college student. Emanuel was selected due to his volunteer history working at the HOPE sponsored shows. He had volunteered for a total of four HOPE shows starting in the fall of 2017 where he assisted the ring stewards, show management, and judging officials.

Emanuel not only got the opportunity to work with show officials from the Palomino Horse Breeders of America (PHBA), but also with officials from the Pinto Horse Association of America (PTHA) through his time volunteering at two of the combined HOPE and Mississippi Pinto Horse Association breed-recognized shows.

HOPE members and show officials from various shows contributed in the selection process finding that Emanuel was the unanimous choice for the scholarship. Emanuel is from Arlington, Tennessee and plans after graduation to pursue a doctorate in veterinary medicine.

In the spring, he hopes to shadow veterinarians working in the racehorse industry. Students wanting further information about the HOPE Scholarship can contact ADS faculty member and HOPE Youth Advisor Dr. Molly Nicodemus at mnicodemus@ads.msstate.edu.



HOPE officers and youth advisor awarding Emanuel Mireles the first HOPE Scholarship at the HOPE Annual Christmas Party

Meat Chemistry & Cuisine Final Project



The students in the ADS Meat Chemistry and Cuisine class worked hard this semester and presented their final product showcase.

The Students were assigned either Beef, Pork, Lamb, or Goat species and selected meat cuts to prepare their final dishes.

They discussed the Anatomy, Biology, and Chemical Composition (ABC's) of their meat cut(s) and how they factored these considerations into their final dish.

Food judges determined that each dish was a delicious winner!

HORSEMAN'S ASSOCIATION T-SHIRT SALE

If you are looking for Christmas gifts, the Horseman's Association is selling their club shirts.

Club officers assisted in designing the shirt. Shirt sales support the club's spring trip. Shirt price is \$20 with a wide range of adult sizes available.

The club will also be sponsoring a second fundraiser in the Spring with an Open Horse Show. Individuals interested in learning more about the shirt sales or the open horse show can visit the club's Facebook page at <https://www.facebook.com/msstatehorsemens/>.

Individuals can also contact the club's advisor, Dr. Molly Nicodemus, at mnicodemus@ads.msstate.edu for shirt purchases and further information on club activities.



2018-2019 Horseman's Association T-Shirt Design

Equestrian Team Tryouts



The Equestrian Team will hold a spring tryout interest meeting on Thursday, January 10th at 6pm in Wise room 4043.

For more information, contact Coach Glenn at aes779@msstate.edu



HANDS ON HORSES

Join us **Saturday April 6th, 2019** at the MAFES Horse Unit for a hands-on day of practical horse management techniques!

Hay is for Horses

properly feeding the equine athlete

Heels Down, Eyes Up

the importance of good horsemanship

Pain in the What?

evaluating lameness

What's that Doohickey Do?

saddle fit and tack function

My Horse is just "Big-Boned"

body condition scoring

Vital Signs are Good

vital signs and how to take them

What's Going On?

current/ongoing research at MSU

Cost: \$45

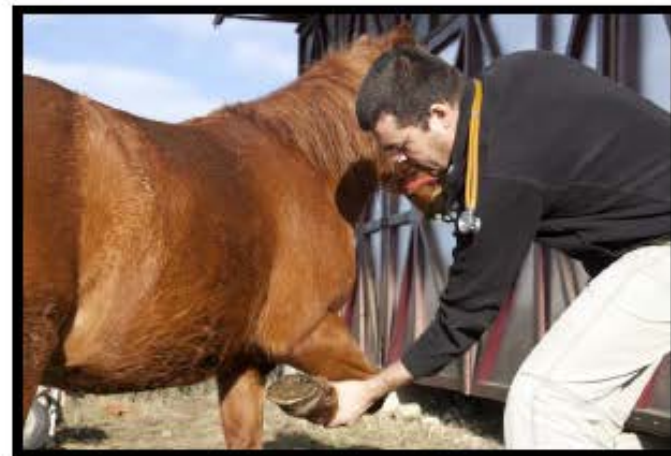
lunch and manual provided!

To Register Contact:

Dr. Clay Cavinder

clay.cavinder@msstate.edu or

662-325-7466; By **April 1st**



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EXTENSION

ADS 3223 Horse Management Students Studying Careers in the Show Industry

For their final project, students in ADS 3223 Horse Management, researched careers in the horse show industry, getting a chance to learn more about who makes up the horse industry.

In this group project, students selected a career in the horse show industry and learned directly those in the industry about the profession, how to enter this career, and what it takes to succeed. Students had a specific interest in careers associated with the industry such as, trainers, judges, show managers, ring stewards, scribes, grooms, course designers, and facilities managers. To see firsthand these individuals working directly in the show setting, students got an opportunity to volunteer for a local breed-sanctioned horse show working alongside some of the professionals in the industry. Students headed to Lauderdale County Agri-Center in Meridian, MS this past weekend to work with representatives from the Heart of Dixie Palomino Exhibitors Association (HOPE) and with the Mississippi Pinto Horse Association at the combined Palomino/Pinto Christmas Show.

Students got to pick the aspect of the show industry they were interested in, and then, assist those professionals that were at the show. In class students will be presenting their career projects and educating their classmates on what they learned about the horse industry. Those interested in learning more about ADS 3223 Horse Management can contact course instructor Dr. Molly Nicodemus at mnicodemus@ads.msstate.edu.



Dixie National: Livestock Show and Rodeo



Follow this link to check out the information on the 2019 Dixie Nationals!

<https://www.mdac.ms.gov/bureaus-departments/state-fair-commission/2019-dixie-national-livestock-show-and-rodeo/?fbclid=IwARoKG8hWWBUcki0KrWkTrkN7WEtm17Tc-r16JohJPDrrrelu1XbTSM2c6T1U>

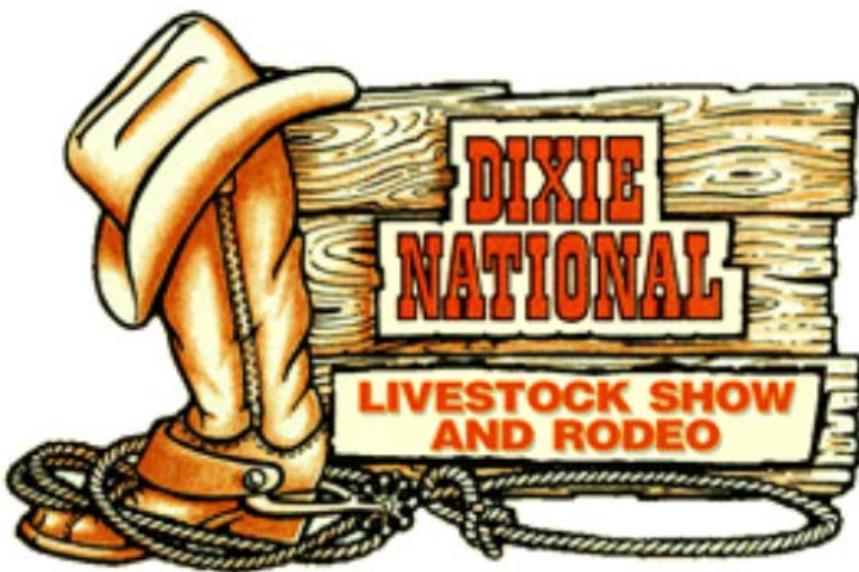
2019 Dixie National Livestock Open Show Online Entry System

2019 Dixie National Junior Round-Up

2019 Application for Vendors/Exhibitors

2019 Open Barrow Entry Form

2019 Beef Judging Entry Form and 2019 Intercollegiate Beef Judging Contest Rules



Mississippi State Equestrian Team Fundraiser

**Support the team by going to the link
to purchase your candles!**

[https://fundraising.goldcanyon.com/fundraiser-candles?
fundraiser=703&seller=1713](https://fundraising.goldcanyon.com/fundraiser-candles?fundraiser=703&seller=1713)



**GET YOUR CHRISTMAS
GIFTS HERE!**

The Mississippi State Equestrian Team is having a fundraiser with Gold Canyon Candles! The team will receive 40% of every candle sold!

National FFA Vet Science Contest

Congratulatory shout out to Animal and Dairy Sciences student, Amyjo "Red" Steichen, who participated in the 2018 National FFA Vet Science contest. Her chapter from Cullom, Illinois finished 3rd in the nation and she was the 4th place individual in the contest!



Mississippi State University Equestrian Team Hat Sale



□ We have a fresh order of hats in and they are perfect holiday gifts!

Message them with an email address, shipping address, and the quantity/color(s) you'd like!

Hail State! □

National Goat Producers Conference, Tuskegee Alabama

The MSU Meat Science and Muscle Biology team and the Meat Chemistry and Cuisine program were invited to the National Goat Conference in Tuskegee AL the National Goat Consortium of 1890s. This event had over 250 participants who enjoyed 3 days of goat-centric research, and management workshops. Thanks to the MSU ADS team, real-time goat meat fabrication and cookery were a highly anticipated, added attraction to this conference.

The team arrived on Sunday and participated in a "Taste of Chevon (Goat Meat)" reception in which a variety of meat and dairy goat products including tacos, ice cream, cheese, and quiche were served. The vendors came from New York, Florida, Montana, and more to showcase their finest goat products. The event took place on Moton Airfield which is designated a National Historic Site and is under jurisdiction of the National Park Service as a testament to the heroic feats of Tuskegee Airmen, The MSU team was privileged and prominently featured while serving custom-made chevon houderves in the bar area of the historic Skyway club once occupied by the rank and file members of the world famous Tuskegee Airmen.

These featured meat products included Chevon chops, sliders, and meatballs along with 3 varieties of Chevon sausage: Garlic and Herb, Pepperjack Cheese, and Jalapeno Pineapple. All of these products were developed, processed, and cooked by the MSU meat lab students and staff, and are available in the MAFES sales store or by special order through Ms. Lori Jones in the Department of Animal and Dairy Sciences when goat meat supplies permit.

The MSU team has also developed a mobile, small ruminant processing demonstration system that is capable of fabricating retail cuts and provides participants a real-time, interactive experience. On Monday the team facilitated three separate goat carcass selection and fabrication workshops in which they demonstrated the step by step process of identifying and processing goats for meat production. This workshop was highly anticipated and delivered beyond expectations according to feedback from participants. The workshops were highly rated and the participants were left with a newfound appreciation for Dr. Burnett's philosophy of marketing "goat meat" as opposed to just marketing "meat goats."



Congratulations Taylor McNair Miss Rodeo Mississippi



Mississippi State University Equestrian Team shared a post.

22 hrs · 🌐

Congratulations Taylor McNair! Hail State!

Empowering Students with Knowledge and Skills through Active Learning



by Dr. Erdogan Memili

ABC and XYZ of Goat and Sheep Production

The ADS 4223 Goat and Sheep Production course and its Laboratory ADS 4221 are aimed at instilling our students with contemporary knowledge and skills in management and marketing of goats and sheep in production enterprises.

This semester, there were 25 and 15 students in ADS 4223 and 4221, respectively.

Students learned the fundamentals of goat and sheep agriculture including breeding, genetics, nutrition and health, and the best practices in management.

In addition, guest speakers from the University and from industry shared the essentials of success in small ruminant agriculture in the real-world, including meat quality, marketing, business planning, and new farming practices.

In the Laboratory section, the students visited and interviewed four producers at their goat or sheep farms, and developed laboratory reports.

The class resulted in with a dedicated group of teachers, researchers and producers helping train some of our next generation of small ruminant specialists and producers who will help shape the future of agriculture in the U.S. and the world.



Empowering Students with Knowledge and Skills through Active Learning



by Dr. Erdogan Memili

Fundamental and Applied Endocrinology

The PHY 8133 Endocrine Secretions course aimed at providing students a comprehensive understanding of modern endocrinology. This semester's class of 10 graduate students mastered basic and applied endocrinology through a diverse set of active learning practices. By reading recent research articles, students studied the complete endocrine system which is critically involved with many key aspects of mammalian physiology and is essential for maintenance of the homeostasis in the body. The course covered fundamentals of the endocrine system with all its endocrine glands, molecular and cellular mechanisms of hormone action, as well as its pathophysiology.



They pursued a group project, later to be published, where each did a comprehensive literature search to find quality and relevant research articles on hormones and cattle agriculture. Each studied their panel of the articles which they then presented with discussion, journal club style. The class then jointly developed a review article, entitled, "Harnessing the value of hormones in cattle farming and welfare, and on human health via meat and milk" where all of them are equally contributing co-authors. The manuscript is expected to be published in a peer-reviewed scientific journal in 2019. Also, two of the students disseminated the knowledge "Hormones & Cattle Farming" to a broader audience through the Farm and Family Radio Program by Mississippi State University Extension Service (<http://extension.msstate.edu/shows/farm-and-family>).



By seeking and generating knowledge, students have developed important skills including critical/creative/strategic/applied thinking, scientific communication. The student work has also positive broader impact through the radio program and the scientific report.



Dr. Erdogan Memili Secures Funding for Collaborative Project

“ANBIOCORE [Center for Collaborative Research (CCR) on Animal Biotechnology and Coral Reef Fisheries]: Interdisciplinary Graduate Education and Research in Animal Biotechnology and Coral Reef Fisheries” was funded by the Sustainable Higher Education Research Alliances (SHERA) of the United States Agency for International Development (USAID).

In this collaborative project with the Bogor Agricultural University in Indonesia, Dr. Memili is the PI of the livestock section of the funded research from the US side. Of the nearly \$3 million of funding, close to \$200,000 were budgeted for Mississippi State.

Upcoming Extension Events

Beef Extension - Dr. Brandi Karisch & Cobie Rutherford

Jan. 30 Feb. 1, 2019: National Cattlemen's Beef Association Convention, New Orleans, LA

Phone: (662) 325-7465 or brandi.karisch@msstate.edu (662) 325-4344 or cobie.rutherford@msstate.edu

Beef Calendar: <http://extension.msstate.edu/livestock/beef/beef-calendar>

Dairy Events - Dr. Amanda Stone

Phone: (662) 325-8773 or Email: amanda.stone@msstate.edu Website: <http://extension.msstate.edu/dairy>

4-H Events - Dr. Dean Jousan

February 2 - 17, 2019: Dixie National Livestock Show and Rodeo, MS State Fairgrounds, Jackson, MS

February 7, 2019: 2019 Dixie National Sale of Junior Champions, MS State Fairgrounds, Jackson, MS

Phone: (662) 325-2424

Email: dj230@msstate.edu [www.http://extension.msstate.edu/4-h](http://extension.msstate.edu/4-h)

Equine Events - Dr. Clay Cavinder

April 6, 2019: HANDS ON HORSES, MAFES Horse Unit, Starkville, MS

Contact Dr. Cavinder for information about programs and events. Phone: (662) 325-7566 or clay.cavinder@msstate.edu Website

<http://extension.msstate.edu/agriculture/livestock/equine/upcomingprograms>

2018 Refereed Publications

- McCarty, Keelee J. , Megan P. T. Owen, Caitlin G. Hart, Robyn C. Thompson, **Derris D. Burnett**, E. Heath King, Richard M. Hopper, and **Caleb O. Lemley**. Effect of chronic melatonin supplementation during mid to late gestation on maternal uterine artery blood flow and subsequent development of male offspring in beef cattle. *Journal of Animal Sciences*. 2018.96:5100–5111. doi: 10.1093/jas/sky363.
- Thompson, Shannon Kate, Naseer A. Kutchy, Samantha Kwok, Zulfi N. A. Rosyada, Ikhide G. Imumorin, Bambang Purwantara, and **Erdogan Memili**. Review: Sperm: Comparative morphology and function related to altered reproductive strategies and fertility in mammals. *The Professional Animal Scientist* 34:558–565 <https://doi.org/10.15232/pas.2018-01748>
- Lemley, Caleb O.**, Caitlin G. Hart, Racheal L. Lemire, E. Heath King, Richard M. Hopper, Seong B. Park, **Brian J. Rude**, and **Derris D. Burnett**. Maternal nutrient restriction alters uterine artery hemodynamic and placentome vascular density in *Bos indicus* and *Bos taurus*. *Journal of Animal Sciences*. 2018. 96:4823–4834. doi: 10.1093/jas/sky329.
- Holtcamp, Alexander J., Anuraj T. Sukumaran, Abigail E. Schnedler, Brandon J. McClenton, Emery Kunze, Chris R. Calkins, **Brandi B. Karisch**, **Derris D. Burnett**, **Thu T.N. Dinh**. Effects of feeding endophyte-infected tall fescue seeds to stocker Angus steers on retail quality attributes of beef strip steaks. *Meat Science* 149 (2019) 31-39. <https://doi.org/10.1016/j.meatsci.2018.11.007>
- KAYA, Abdullah, Erdoğan GÜNEŞ, **Erdoğan MEMİLİ**. Application of reproductive biotechnologies for sustainable production of livestock in Turkey. *Turkish Journal of Veterinary and Animal Sciences*. (2018) 42: doi:10.3906/vet-1706-66/
- Moura. Arlindo Alencar, Ana Luiza Cazaux Velho, **Erdogan Memili**, Antônia Moemia Rodrigues Portela, Arabela Guedes Viana, Maria Júlia Barbosa Bezerra, Fábio Róger Vasconcelos. Seminal plasma proteins and metabolites: effects on sperm function and potential as fertility markers. *Proceedings of the 10th International Ruminant Reproduction Symposium* (IRRS 2018); Foz do Iguaçu, PR, Brazil, September 16th to 20th, 2018.
- Viana. A. G. A. , A. M. A. Martins, A. H. Pontes, W. Fontes, M. S. Castro, C. A. O. Ricart, M. V. Sousa, A. Kaya, E. Topper, **E. Memili** & A. A. Moura. Proteomic landscape of seminal plasma associated with dairy bull fertility. *Scientific Reports*. (2018) 8:16323 | DOI:10.1038/s41598-018-34152-w
- Park, Seong B., **Shecoya B. White**, Christy S. Steadman, **Clay A. Cavinder**, **Scott T. Willard**, **Peter L. Ryan**, and **Jean M. Feugang**. Real-Time Bioluminescence Analysis of *Escherichia coli* O157:H7 Survival on Livestock Meats Stored Fresh, Cold, or Frozen. *Journal of Food Protection*, Vol. 81, No. 11, 2018, Pages 1906–1912. doi:10.4315/0362-028X.JFP-18-207.
- Dinh. T.T.N.**, J.F. Legako, M.F. Miller, J.C. Brooks. Effects of USDA quality grade and cooking on water-soluble precursors of beef flavor. *Meat Science*. 146 (2018) 122-130. <https://doi.org/10.1016/j.meatsci.2018.08.008>.
- Littlejohn, Brittni P., David G. Riley, Thomas H. Welsh, Jr, Ronald D. Randel, **Scott T. Willard**, and **Rhonda C. Vann**. Use of random regression to estimate genetic parameters of temperament across an age continuum in a crossbred cattle population. *Journal of Animal Science*. 2018. 96:2607–2621. doi: 10.1093/jas/sky180.
- Vu, P. T. T., A. J. Holtcamp, A. T. Sukumaran, M. V. V. Le, D. H. Nguyen, & **T. T. N. Dinh**. (2018). Effects of market type and time of purchase on oxidative status and descriptive off-odors and off-flavors of beef in Vietnam. *Meat science*, 145, 399-406. <https://doi.org/10.1016/j.meatsci.2018.07.018>.

2018 Refereed Publications

- Ishak, G. M. , S. T. Bashir, G. A. Dutra, G. D. A. Gastal, M. O. Gastal, **C. A. Cavinder, J. M. Feugang**, and E. L. Gastal. In vivo antral follicle wall biopsy: a new research technique to study ovarian function at the cellular and molecular levels. *Reproductive Biology and Endocrinology* (2018) 16:71. <https://doi.org/10.1186/s12958-018-0380-8>.
- Humphrey, R. M., Z. Yang, M. S. Hasan, **M. A. Crenshaw, D. D. Burnett**, J. K. Htoo and **S. F. Liao**. The compensatorily-gained pigs resulted from feeding a methionine-deficient diet had more fat and less lean body mass. *Journal of Applied Animal Nutrition*, Vol. 6; e6; page 1 of 7. <https://doi.org/10.1017/JAN.2018.5>.
- Griffin, Courtney M. , BS; Jenna A. Scott, BS; **Brandi B. Karisch, MS, PhD**; Amelia R. Woolums, DVM, MVSc, PhD, DACVIM, DACVM; **John R. Blanton, MS, PhD**; Ray M. Kaplan, DVM, PhD, DEVPC, DACVM; William B. Epperson, DVM, MS, DACVPM (Epidemiology); David R. Smith, DVM, PhD, DACVPM (Epidemiology). A randomized controlled trial to test the effect of on-arrival vaccination and deworming on stocker cattle health and growth performance. *The Bovine Practitioner*, Vol. 52, No. 1.
- Sun, Yuhang , Jin Liu, Gengping Ye, Fang Gan, Mohammed Hamid, **Shengfa Liao**, Kehe Huang. Protective effects of zymosan on heat stress-induced immunosuppression and apoptosis in dairy cows and peripheral blood mononuclear cells. *Cell Stress and Chaperones*. <https://doi.org/10.1007/s12192-018-0916-z>.
- Woolums, Amelia R., **Brandi B. Karisch**, Jonathan G. Frye, William Epperson, David R. Smith, **John Blanton Jr.**, Frank Austin, Ray Kaplan, Lari Hiott, Tiffanie Woodley, Sushim K. Gupta, Charlene R. Jackson, Michael McClelland. Multidrug-resistant *Mannheimia haemolytica* isolated from high-risk beef stocker cattle after antimicrobial metaphylaxis and treatment of bovine respiratory disease. *Veterinary Microbiology* 221 (2018) 143-152. <https://doi.org/10.1016/j.vetmic.2018.06.005>.
- Sukumaran, Anuraj T., Alexander J. Holtcamp, Yan L. Campbell, **Derris Burnett**, Mark W. Schilling, **Thu T.N. Dinh**. Technological characteristics of pre- and post-rigor deboned beef mixtures from Holstein steers and quality attributes of cooked beef sausage. *Meat Science*. 145 (2018) 71–78. <https://doi.org/10.1016/j.meatsci.2018.06.001>.
- Hart, CG, BE Voelz, KE Brockus, **CO Lemley**. Hepatic steroid inactivating enzymes, hepatic portal blood flow and corpus luteum blood perfusion in cattle. *Reproduction in Domestic Animals*. 2018;53:751–758.
- Camacho, L.E., **C.O. Lemley**, S.T. Dorsam, K.C. Swanson, K.A. Vonnahme. Effects of maternal nutrient restriction followed by realimentation during early and mid-gestation in beef cows. II. Placental development, umbilical blood flow, and uterine blood flow responses to diet alterations. *Theriogenology*. <https://doi.org/10.1016/j.theriogenology.2018.04.013>.
- Lemley, C.O.**, L.E. Camacho, D.M. Hallford, K.A. Vonnahme. Uteroplacental secretion of progesterone and estradiol 17beta in an ovine model of intrauterine growth restriction. *Animal Reproduction Science*. 193 (2018) 68-78. <https://doi.org/10.1016/j.anireprosci.2018.04.001>.
- T. Williams, **B. Rude, S. Liao**, C. Mochal-King, **M. Nicodemus**. Effects of fat supplementation on plasma glucose, insulin and fatty acid analysis in ponies maintained on a forage- based diet. *Journal of Animal Physiology and Animal Nutrition*. 2018;1–8.DOI: 10.1111/jpn.12905.
- Gastal, G.D.A., **J.M. Feugang**, F.L.N. Aguiar, A.P.R. Rodrigues, J.M. Scimeca, G.A. Apgar, W.J. Banz, E.L. Gastal. Cryopreservation and in vitro culture of white-tailed deer ovarian tissue. *Theriogenology*. 113 (2018) 253-260.

2018 Refereed Publications

- Velho, Ana Luiza Cazaux, Einko Topper, Erika Menezes, **Thu Dinh**, Abdullah Kaya, Arlindo Alencar Moura, **Erdogan Memili**. Metabolomic markers of fertility in bull seminal plasma. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0195279>.
- Owen, MPT , EN Ferjak, **CA Cavinder**, KJ McCarty, KC Yankey, CG Hart, **DD Burnett**, **TTN Dinh**, **CO Lemley**. Effects of body condition score (BCS) on steroid- and eicosanoid- metabolizing enzyme activity in various mare tissues during winter anoestrus. *Reproduction in Domestic Animals*. 2018;53:296–303. <https://doi.org/10.1111/rda.13104>.
- Park, Seong B., **Scott T. Willard**, Christy S. Steadman, Atul A. Chaudhari, Shreekumar R. Pillai, Shree R. Singh, **Peter L. Ryan** and **Jean M. Feugang**. Proteomic analysis of antimicrobial effects of pegylated silver coated carbon nanotubes in Salmonella enterica serovar Typhimurium. *Journal of Nanobiotechnology*. (2018) 16:31 <https://doi.org/10.1186/s12951-018-0355-0>.
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- Wang, T., **M. A. Crenshaw**, N. Regmi, **B. J. Rude**, M. S. Hasan, A. T. Sukumaran, **T. Dinh**, and **S. F. Liao**. 2018. Effects of dietary lysine level on the content and fatty acid composition of the intramuscular fat in late-stage finishing pigs. *Canadian Journal of Animal Science*. 98: 241-249. DOI: [dx.doi.org/10.1139/cjas-2017-0083](https://doi.org/10.1139/cjas-2017-0083).
- Owen, M.P.T., K.J. McCarty, C.G. Hart, C.S. Steadman, **C.O. Lemley**. Endometrial blood perfusion as assessed using a novel laser Doppler technique in Angus cows. *Animal Reproduction Science*. 190 (2018) 119-126. <https://doi.org/10.1016/j.anireprosci.2018.01.015>.
- Feugang, Jean M. , Shengfa F. Liao, Scott T. Willard, and Peter L. Ryan**. In-depth proteomic analysis of boar spermatozoa through shotgun and gel-based methods. *BMC Genomics*. (2018) 19:62 DOI 10.1186/s12864-018-4442-2.
- Liao, Shengfa F.**, Naresh Regmi, Guoyao Wu. Homeostatic Regulation of Plasma Amino Acid Concentrations. *Frontiers in Bioscience, Landmark*. 23, 640-655, January 1, 2018.
- Feugang, Jean M. , Shengfa F. Liao, Scott T. Willard, and Peter L. Ryan**. In-depth proteomic analysis of boar spermatozoa through shotgun and gel-based methods. *BMC Genomics*. (2018) 19:62 DOI 10.1186/s12864-018-4442-2.
- Liao, Shengfa F.**, Naresh Regmi, Guoyao Wu. Homeostatic Regulation of Plasma Amino Acid Concentrations. *Frontiers in Bioscience, Landmark*. 23, 640-655, January 1, 2018.

2018 Book Chapters:

Jain, Sapna, Seong B. Park, Shreekmar R. Pillai, **Peter L. Ryan**, **Scott T. Willard** and **Jean M. Feugang**. Applications of Fluorescent Quantum Dots for Reproductive Medicine and Disease Detection. In *Unraveling the Safety Profile of Nanoscale Particles and Materials—From Biomedical to Environmental Applications*, Chapter 6, pp. 133-148, <http://dx.doi.org/10.5772/intechopen.72978>.